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COMPUTING AT THE PHYSICS TERMINAL

The cover photo of this month's COMPUTERNEWS features the Burton Tower, the 12th floor of which houses the Physics Terminal. Two items are of general interest: a scenic view of the St. George campus and downtown Toronto, and an RJE terminal linked to the IBM S/370-165-II computer. The latter is a new CDC Cyber 18-05 Hasp Workstation equipped with a 600 card per minute card reader and a 600 line per minute printer.

The reader has proven to be quite robust and reliable, especially in comparison with the REMCOM unit it replaced. Unfortunately, cards with writing or printing on their backs cannot be read. This has resulted in a problem with prepunched HSJS job cards, but the recently introduced $JOB cards should alleviate the problem. Blank cards are stocked to replace reversed cards in user decks.

The printer, which is of the band type, has also been found to be very reliable. In operation it is very quiet, a feature appreciated by most of the users at the terminal. There has been some problem with premature folding of the printer ribbons but CDC will shortly be installing a fix for this.

The HASP software for the Cyber 18-05 was developed by CDC here in Toronto. The final tuning of the system was done on site by one of the software developers.

To date, the only interactive equipment available at the Physics Terminal is one IBM 2741 terminal. The recent installation of the DEC 1060 computer has augmented the current interest in interactive computing. As such, the one typewriter terminal is insufficient to serve the needs of the Physics Terminal users. To improve the situation we have purchased five interactive terminals. Unfortunately, there is no available space to accommodate these terminals --- indeed the Physics Terminal is very congested in its present state. All attempts by UTCC to obtain another room of adequate size for these terminals have been unsuccessful. A number of people have complained about the lack of interactive terminals to the Computing Co-ordinator. Since the lack of terminals is due to a lack of space, such complaints should be voiced to those in charge of space allocation for the Burton Tower. These people may be more sympathetic towards the needs of the users themselves than they are to the needs of UTCC.

The Physics Terminal is operated almost totally on a self-serve basis and is open only to graduate students and staff. The latter restriction is necessary due to the small size of the terminal room and the heavy usage the terminal receives (it is perhaps the busiest of the remote terminals). The users are predominantly from the disciplines of Astronomy, Computer Science and Physics and many of the jobs submitted are of the "number crunching" variety.

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COMPUTING AT THE PHYSICS cont'd

Anyone interested in the new RJE equipment, the space predicament, or the scenic view is invited to drop by and introduce himself to the Computing Co-ordinator, Bob Chambers, in Room 1202 of the Burton Tower (phone 978-8823).

Bob Chambers

CLASS E SERVICE

Some users have requested a clarification of the charging formula for the proposed Class E service. The intention of the Class E service is to provide low cost execution service for jobs requiring a large amount of CPU and a relatively low amount of I/O resources.

Currently, the charging algorithm has not been finalized. The main factor will of course be the CPU usage, but there may also be an I/O factor. The article in last month's COMPUTERNEWS entitled OFF THE TOP may have inadvertently caused some confusion. What was intended to be emphasized was that there will be no additional memory or I/O charge.

Although UTCC's costs for providing this service will be relatively fixed, the final rate will depend on the projected number of users who will take advantage of the service.

The above information should provide users with a better understanding of our proposed Class E service.

Stan Yagi

THE UTCC FRONT END MONITOR

On May 23, at 8A.M., UTCC plans to install a monitor for the front end computer attached to the IBM S/360-65. This change will significantly affect APL and ATS sign-on sequences. Within one or two weeks of installing the monitor on the S/360-65, UTCC will be installing the same monitor on the S/370-165-II; the latter will change the logon sequences for TSO and WYLBUR. The installation will not initially affect 2741 users of TSO and WYLBUR (but will eventually be changed to do so).

These changes will result in increased usability of UTCC's time-sharing services. Users will receive text messages informing them of the status of the host computer and its time-sharing services. As well, users will never be faced with the problem of trying to sign onto a service which has no free lines when another service on the same host computer has many unused lines.

Introduction

When a user dials an interactive service (such as TSO or APL), a small computer (the "front end" computer) answers the telephone. This "front end" computer is in charge of handling the communications with the user's terminal (under the control of a program in the main computer to which it is attached). Currently, all the front end computers are IBM 3705-II communications controllers.

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UTCC FRONT END MONITOR cont'd

Before UTCC wrote the "Front End Monitor" package, a remote user of an interactive service would have to dial a telephone number which was determined by which interactive service the user wished to access, as well as by the type of terminal being used. For example, if the user wished to use APL on the IBM S/360-65 (ITS) system, and had an ASCII terminal, one phone number would apply. If the same user wished to use ATS (sharing the same host computer and front end computer as APL), a different phone number would have to be used.

This is because, at present, a given phone number is associated with a specific interactive service. Similarily, terminals which are "hardwired" may connect to only one time-sharing service on a particular host computer - as if they have a phone permanently dialed. The "Front End Monitor" is a program inside the "front end" computer which allows a user to connect to any time-sharing service on the host computer to which the "front end" is attached by dialing only one phone number (associated with the host computer - not the time-sharing service and terminal type).

Each published phone number for a time-sharing service is actually the first number of a group of phone lines (called a "hunting group"). These phone lines are not necessarily sequentially numbered. However, the group has the property that if the number which is phoned is in use, the call will automatically be passed on to the next free phone line in the group (i.e., the group will hunt for an unused line). The user will only receive a busy signal on the phone if all the lines in a hunting group are busy.

In order to prevent the latter situation from occurring during peak loads, a few extra phone lines must be rented and placed at the end of an individual hunting group associated with a particular time-sharing service. By decreasing the number of hunting groups, most of these extra phone lines will not be required, resulting in substantial decreases in UTCC's phone bills.

Therefore, a feasible means of managing costs is having one hunting group for each computer offering time-sharing services. A phone number in a particular exchange which is callable only within that exchange may be rented much more cheaply than one which is available outside that exchange as well. The former is referred to as a centrex number and the latter as a non-centrex number. By dividing a single hunting group into two sections (one of which is available only within the St. George Campus exchange, which is 978, and the other which users in other exchanges may phone), UTCC will be able to reduce its phone bills even further.

How to Use the Front End Monitor

Once the front end monitor has been installed, the standard sign-on procedure will vary slightly. The following is a list of these variations.

The telephone numbers associated with the various time-sharing services will change. The new telephone numbers will be as follows.

Service	Centrex	Non-Centrex
APL	978-7200	978-7201
ATS	978-7200	978-7201

cont'd...

UTCC FRONT END MONITOR cont'd

(The following phone numbers will be valid only when the monitor is installed on the S/370-165-II.)

TSO	978-6200	978-6201
WYLBUR	978-6200	978-6201

Note that 2741 users of TSO and WYLBUR will not initially go through the front-end computer, and must phone 7303 or 7235 respectively. Their logon will remain unchanged.

After dialing the number, enter a carriage return. At this point the terminal will start typing out a message. Users on 2741 terminals will receive the message twice (only one of the messages will be readable).

Type in the name of the time-sharing service desired (i.e., one of APL, ATS, TSO, or WYLBUR), and then enter a carriage return.

If the above steps have been correctly carried out, a message of the form "connecting to utc address 40 proceed with sign on" will be typed out at the terminal. At this point, the user must proceed with the usual sign-on to the service.

If a problem was encountered when connecting to a particular service, the front end monitor will attempt to inform the user of the nature of the problem. Possible problems include:

a. the host computer is down.

b. the host computer is up, but the particular time-sharing service is not.

c. there was noise on the phone line, and what was typed in was mis-heard by the front end computer (in this case, just re-type the message).

d. The front end monitor cannot connect the user to the service specified (either the user misspelled the name of the service, or dialed the wrong number).

After the front end monitor informs the user of the problem, the user can again try to connect to the service. If the user is not successful within two minutes, the front end computer will disconnect the phone.

After signing off a particular time-sharing service, the user is automatically returned to the front end monitor's control. This allows the user to connect to another time-sharing service on the same host computer. If the user does not connect to another service within one minute, the front end computer will disconnect the phone.

Questions and Answers

Q. Why are all messages printed in lower case?

A. Users with APL terminals need to be able to read all messages typed to them (for these users, the messages are always in upper case).

Q. Why do 2741 users have some messages typed twice? Why is one of these always unreadable?

A. There are two fundamentally different kinds of 2741 terminals (called BCD and Correspondence). The first of the two messages is only readable on one kind of 2741; the second message is only readable on the other kind. As soon as the user types in a name which the front end monitor can recognize, it knows what kind of 2741 the user has, and will not print unreadable messages.

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UTCC FRONT END MONITOR cont'd

Q. If you know that I want to use ATS, why not "type" the '*' for me?

A. The '*' for ATS may be followed by a number. The front end monitor doesn't know what number (if any) to use. There are similar problems with TSO (associated with something called a "translate table").

Q. Why not use the '*' for ATS and ')' for APL to signify the service desired?

A. On some ASCII terminals, the '*' in the terminal's standard ASCII character set is identical to the ')' in the same terminal's APL character set. (That is, the front end computer cannot differentiate between these characters.) As well, both characters may optionally be followed by a number. The problem of differentiating between the characters cannot be resolved without a great deal of extra work.

Q. Why are 2741s on the S/370-165-II not going to be affected immediately?

A. The 2741s are attached to a piece of hardware called a 2703. The latter is a predecessor of the front end computer. UTCC will be moving the 2741s to the front end computer in the near future. However, UTCC expects that this will not coincide with the installation of the front end monitor for other users.

Q. I use a mini-computer to talk to APL. Where can I get further information about how it will affect me?

A. There has been a fair amount of effort spent to ensure that mini-computer users will not encounter any major difficulties in using the monitor. Users requiring additional information can phone Doug Lacy at 978-6601.

Summary

It is expected that the Front End Monitor will be installed on the S/360-65 on the morning of May 23. It will be installed one or two weeks later on the S/370-165-II.

(Note again that only 2741 users on the S/370-165-II will not be immediately affected by this change.)

Users experiencing difficulties related to the Front End Monitor are asked to phone the operator of the S/360-65 (978-7107). To obtain information concerning the Front End Monitor before it is installed, call Doug Lacy at 978-6601.

Doug Lacy

USER FORUMS

During the month of April, user forums were held at Erindale College, on the St. George Campus and at Scarborough College.

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USER FORUMS cont'd

Representing UTCC were Dr. Doron Cohen, Stan Yagi, Ralph Lombardi and computing co-ordinators from the respective sites. At the beginning of each forum, Stan Yagi stated that the purpose of the forum was to introduce Dr. Cohen to the user community and to give the users an opportunity to inform Dr. Cohen of the problems they are experiencing.

At both Erindale and Scarborough, Dr. Cohen was able to address each individual who attended the forum. The users reiterated problems which were already known to UTCC. These included slow turnaround on HSJS, increasing computing costs, and very poor turnaround in Class C (particularly at the end of term). Dr. Cohen elaborated upon the several proposals which were forwarded by UTCC with the intention of decreasing computing costs and improving overall service. These proposals include the replacement of the IBM S/370-165-II with a faster machine and the introduction of a new low cost execution service (Class E). (Refer to last month's issue of COMPUTERNEWS for more details on UTCC's proposals.)

The forum on the St. George Campus was attended by more than twenty users. Questions asked covered such diverse topics as the future of the TRY Centre and the size of APL workspaces planned for the future. Questions concerning Administrative computing, the DECsystem, and other services offered by UTCC were also raised.

After addressing the above topics, Dr. Cohen went on to say that at the University of Toronto there exists a silent majority who do not make their needs known. Dr. Cohen stated that the approach he wants to adopt is an open door approach. That is, users will be encouraged to present their computing problems and needs to Dr. Cohen.

At the end of the forum, some users were of the opinion that UTCC should set up a Computer User Committee. Dr. Cohen agreed with this concept. However, he believes that the users should convene to form the Committee independent of UTCC. To ensure that a Committee will be formed in the near future, another user forum will be held on the St. George Campus in May.

Ralph Lombardi

SUMMER CLASS C SERVICE CHANGES

For the past two summers, UTCC has offered Class C service at a reduced rate for memory and expanded hours of operation of the class. Once again, this service will be offered for a four-month period commencing at 00:00, Monday, May 29, 1978 and extending until Sunday, October 1, 1978. The highlights of the service changes, which are the same as last year, are documented below.

1. The rate at which memory is charged will be reduced from the former service factor of 0.75 times the standard memory charge to a new effective service factor of 0.375, one half of the former rate.

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SUMMER CLASS C SERVICE cont'd

2. CLASS C service on weekdays may begin prior to midnight at UTCC's discretion if the normal class loads have effectively dried up by that time. Should new CLASS A/B loads develop, CLASS C service will be suspended until these loads disappear again. On weekends, again at UTCC's discretion, CLASS C jobs that were in the CLASS C queue prior to the weekend will be run during periods of idle time.

3. The operators have been allowed, under certain precisely defined circumstances, limited authority to 'break the FIFO rule' or allow queue-jumping. The circumstances are typically as follows:

   a. The time window remaining for CLASS C service on weekday shifts is too small to run the top job on the queue. The operator may scan down the queue until he finds the first job that will 'fit the window' in order to allow optimal usage of service availability.

   b. The job at the top of the queue cannot run because of non-availability of one or more peripheral devices. There are two cases here. The first case concerns a device which is down and awaiting maintenance. In this case the operator will select the next job and proceed with the queue, returning to the original top job when the device is repaired.

      The second case concerns non-availability of devices because they are already allocated to a CLASS B job(s). In this case the operator will determine whether the devices will be available shortly. If so, he will wait so the top job may run. If not, he will scan down the queue looking for the first job that can run without the device(s) and release it, provided that the time estimation of this job is the same order of magnitude of the job(s) that is being held because of device non-availability. Again, he will return to the top of the queue as soon as the devices become available and will proceed under FIFO rules as normal.

All these rule modifications have been made to allow maximum usage of the CLASS C service time available. Except for the changes listed in this article, existing CLASS C rules and unique CLASS C credit request restrictions still apply. Users are referred to USERBOOK module 3.3BATCH and USERBOOK chapter 3.2 for further information in CLASS C.

For further information regarding summer service changes for CLASS C, please contact a Computing Co-ordinator. The August COMPUTERNEWS will contain details on the precise mechanics and timing of the return to normal CLASS C Service.

Derry Cox

DECSYSTEM-10 NEWS

"Eligibility accounting" is a feature which is expected to be implemented on the DEC 1060 by May 1. This feature permits the CAN holder to specify a dollar limit for each Project-Programmer Number (PPN) that the CAN holder controls. Of course, CAN holders may choose not to specify a dollar limit for the PPNs they contol, in which case the PPN is allowed overdraft.

At login time, the PPN's balance will be reported. The log out message will report the new balance arrived at after debiting by the session charge.

Once eligibility accounting has been fully implemented, no jobs will be allowed to log in under a PPN which has exceeded its dollar limit unless overdraft privileges have been specified for the PPN. Therefore, if the balance is positive, or the PPN has overdraft privileges and the CAN is valid, the job will be logged in.

Rates Under Review

After having worked with the DECsystem-10 for over a month, a few users have expressed concern about the session charges they will have to pay once the discount period has ended. Preliminary analysis of the situation indicates that the charge for memory use is a larger than anticipated proportion of the total session cost. It appears that the large charge for memory use is due to the fact that several of the more popular language processors are rather large (for example, APL and CPL high segments are 31 KW and 39 KW, respectively).

Other questions which have arisen are concerned with the rate for disk I/O charges as well as non-session cost items, such as charges for spooled I/O and tape mounts.

These questions have prompted UTCC to review the DEC 1060 rate structure. UTCC will also have to take into account the new KL10B processor (with about twice the CPU power of the KI10) which is scheduled to be installed before the end of June.

Users with recommendations regarding these matters are encouraged to contact either Ed West or Stan Yagi or use the GRIPE procedure.

Print File Routing to Remote Printers

The program IBMLST is now available. This program allows users to route files to be printed to any of the remote printers connected to the IBM S/370-165-II. There are no S/370-165-II charges associated with this service. At present, the only charge on the DECsystem-10 is that associated with the execution of the IBMLST program itself. Since a certain amount of reorganization of the file is required, the charge for running IBMLST is roughly proportional to the size of the file to be printed.

Users interested in using this program are directed to the IBMLST help file (use the command HELP IBMLST) for additional details.

Ed West

MVS RELATED NEWS

As the functional development of the MVS system draws to an end, it is perhaps an appropriate moment to point out some of the new features which will be available with the MVS operating system. As well, some of the compatabilities and incompatabilities between the MVS and MVT systems will be explored.

A major effort has gone into the designing and development of MVS in order to minimize the number of changes the user will have to deal with. On the other hand, the new system sometimes provides functions similar to those provided by UTCC in the MVT system, only with different approaches. Hindsight also points out the ill-conceived and poorly executed functions, that should, at this point, be redesigned.

The first change, as seen by most batch users, is the redefinition of the time field of the accounting information of the JOB card. With the MVT operating system, the time limit is specified in tenths of minutes of Equivalent Run Time (ERT), which was a common attempt to bridge the gap from a single user system (PCP) to MVT. ERT takes into account the time required for average disk input/output activity to provide a repeatable number for charging and job limiting that is independent of the other users of the machine. MVS, as delivered by IBM, as well as the later releases of MVT, provided job limiting through the use of the CPU TIME= keyword, as well as REGION and output limiting. As we wish to limit modifications to the system to proper exits and to JES2, we have chosen to leave the meaning of the time fields to straight CPU, and use this occasion to upgrade to a more current and common method of time limiting. Historical data related to MVS shows an average ratio of ERT to CPU time of 2.5 to 1. Thus, we have tentatively chosen a CLASS=A limit of 2 minutes of CPU, which, in most cases, is equivalent to 5 minutes of ERT.

The other major change is the interface between TSO and HASP/JES2. MVT/TSO was designed for systems without HASP, and thus did not take into account jobs within the HASP queues. The TSO commands, SUBMIT, STATUS, $ROUTE, $CANCEL, STE, and HOUT, are all UTCC written or are modifications of other commands, and do not necessarily use any standard interfaces. The integration of TSO and JES2 in MVS provides some of these functions, although in different ways than are expected by UTCC TSO users. To retrieve output at a TSO terminal under MVS, the output must have been placed in a JES2 hold output queue with: MSGCLASS=H, SUBMIT dataset HOLD, or SYSOUT=A,HOLD=YES. The OUTPUT command is substantially expanded from the MVT command, and provides functions to change output classes, to release and route output, as well as to retrieve output.

John A. Chapman

CRF BYTES INTO SMALLER SYSTEMS

The Computer Research Facility group is doing bigger things with smaller machines this spring. While the industrious CRF staff has been surreptitiously burying National INS8060 (SCAMP) microprocessors in projects for over a year, spring is heralding the coming of age of several phases of the CRF master microprocessor plan.

Many itinerant souls have been impressed by the small TDL XITAN system talking to them, taking pot shots at recognizing words spoken to it, playing music (?), and doing some crude graphics. The real use, however, has remained a secret revealed to few. CRF has not only budgeted monies for expanding the XITAN (based on a Z80 8 bit microprocessor) into a full development system, but has nearly completed development of a second system under contract to the Hospital for Sick Children. This second system will be a data acquisition system in a suitcase for behaviour monitoring in the hospital and patient's home.

The original system, now under expansion, was purchased to evaluate the reliability of the boards available in the hobby market. To this end, CRF purchased a system which was fairly heavy on esoteric peripherals and short on program development. All program work to date has utilized an extensive FORTRAN cross assembler that runs on one of CRF's PDP-11 systems.

The concept of micro-computers as dedicated system controllers is not to be considered a new philosophy at CRF. Over two years ago, when a decision was made to remove the Calcomp microfilm plotter from its direct computer connection, an LSI 11 was packaged in a small frame with power supply and a few leads and programmed to allow the Calcomp to communicate over a serial link to several host computers. While a controller could have been generated with discrete components, the micro-computer approach has resulted in a reliable, easily modified design which shares spare parts with the many 11/03 systems in the lab.

More recently, when presented with the requirement to "automate" a UNIVAC VIP keypunch as part of the RJE stations being built for the Scarborough and Erindale campuses, the design was based around a "SCAMP" microprocessor which was programmed to do all hand-shaking, protocol and timing for the application. Two of these systems, one in CRF for punching program source decks for the RJE terminals, and one at the Erindale RJE site, have been built and have chalked up an impressive up-time record.

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CRF BYTES INTO cont'd

Current microprocessor projects include a universal SCAMP board for use as a general purpose hardwired logic replacement, an ECG classifier using direct analog input to the XITAN through a Cromenco A-D, D-A board, and a general purpose data acquisition package.

Anyone with an interest in using the CRF development facilities, or deciding which, if any, microprocessor might be helpful in their work, should drop by for a chat.

Carl Stacy

CIPS SESSION '78

The Canadian Information Processing Society (CIPS) will be holding a computer conference at the Edmonton Plaza Hotel on May 23, 24, and 25 of this year. The conference, Session '78 has as its theme, "To 2000; the Next 22 Years." The conference slogan emphasizes the exciting possibilities computing holds in the future and the responsibility of computer professionals today to foster intelligent planning of that future. The conference sub-themes divide this broad topic into more specific subject areas. Within each area, there will be a significant speaker who is qualified to speak on future developments in the field in an authoritative way.

The conference sessions will be organized around the following sub-themes:

- Professionalism and certification
- Computer Assisted Instruction
- Government role in computing
- Text processing
- Large systems: their place in the future
- Computer chess workshop
- Microprocessors: future trends
- Business data processing
- Performance evaluation
- Education and professionalism
- The future of computer utilities
- Intelligent terminals
- Operating systems
- The public image
- Computer ombudsman
- Health care
- Mass storage
- Computers and education
- Computer communications
- Data bases
- Remote sensing
- Computers and the law
- Software engineering
- Privacy and security
- Computing for the amateur
- Future technology

Concurrent with the conference will be a computer film festival and an equipment show highlighting mini and micro computers and intelligent terminals. Both computer professionals and the general public are invited to attend.

Registration forms for the conference are available at the Information Office, Room 206, Engineering Annex. For additional information concerning the conference, write:

CIPS Session '78
352 General Services Building
University of Alberta
Edmonton, Alberta
T6A 2H1

STATISTICAL PACKAGES AT UTCC

The newly released booklet, entitled Statistical Packages at UTCC, is a description of the various statistical packages offered by UTCC. The packages documented in the booklet are described in terms of available documentation, basic overview, syntax, procedures offered, and access. The statistical packages outlined in the booklet are BIOMED, DATATEXT, IMSL, SAS, SPSS, MINITAB, NTSYS, RAPE, SNAP and TSP.

Interested users can obtain the publication, Statistical Packages at UTCC from the Information Office, Room 206, Engineering Annex.

ATTENTION TSO USERS

Due to lack of use, the following TSO commands will be deleted on May 15:

CAL
CHECK
ONSCRIPT
ONSC6302
ONS76
SCANR
TEACH

Users who are adversely affected should contact J. Chapman at 978-8773.

Jim Heifetz

TAPE SPOOLING FOR LARGE PRINT JOBS

For the computer user, there is, perhaps, nothing quite as frustrating, expensive or wasteful, as either running out of time or exceeding the estimated number of lines on a printout. In either case, the user is stuck with a large print charge and a great deal of wasted paper. Similar problems can occur when only part of a large printout is needed at a given time.

UTCC has developed a utility to print either all or a selected part of sysout datasets which have been spooled onto magnetic tape. It is designed for very large datasets and can be restarted without any loss of data or duplication of printing thus making the accuracy of the user's time and line estimates less critical.

Documentation is currently being prepared for USERBOOK. Users who are working with large print datasets should call Herb Kugel at 978-7286. We can save you money and - who knows? - maybe even a tree or two.

Herb Kugel

RECENT ACQUISITIONS IN THE DEPARTMENT OF COMPUTER SCIENCE LIBRARY

Beilner, H. and Gelenbe, E., eds.
Modelling and performance evaluation of computer systems.
Amsterdam, North-Holland, 1977.

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Long Beach, Cal., IEEE Computer Society, 1975.

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New York, North-Holland, 1977.

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Englewood Cliffs, N.J., Prentice-Hall, 1976.

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New York, Wiley, 1975.

UTCC SYSTEMS

SYSTEM/370 MODEL 165-II

- located in SF103/105/112
- provides General Purpose Job Stream, High Speed Job Stream, TSO, WYLBUR
- 4 megabytes of memory
- OS/MVT with HASP

SYSTEM/360 MODEL 65

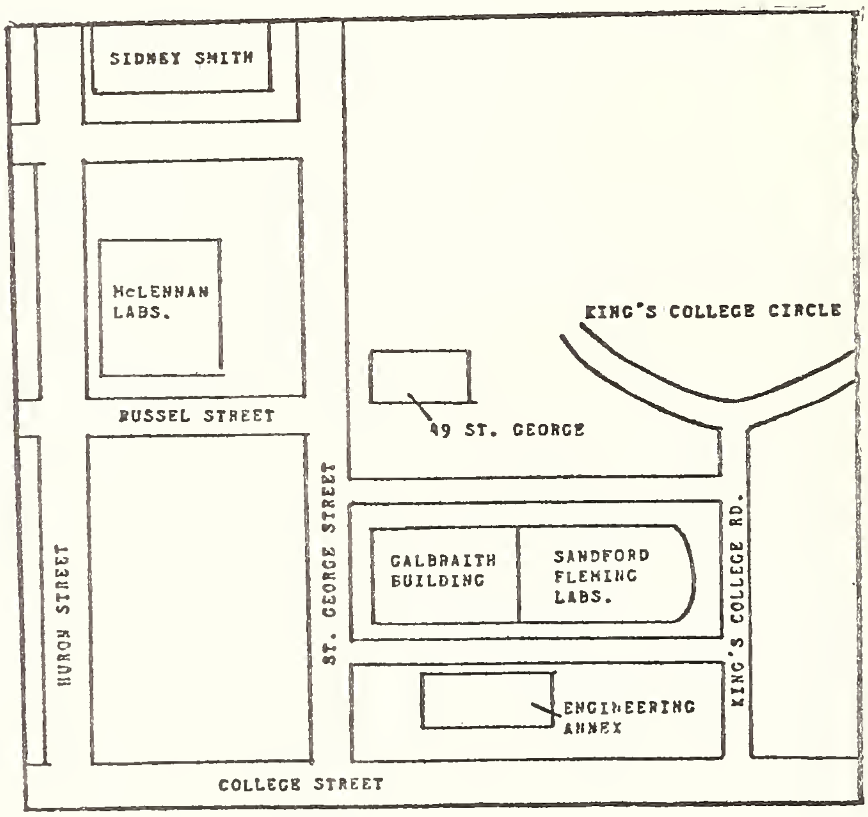
- located in McLennan Physical Laboratories
- provides APL and ATS services
- 1536K bytes of core
- OS/MVT with APL and ATS

COMPUTER RESEARCH FACILITY

- located in SF207
- DEC GT44 System with PDP-11/40 CPU
- DEC GT40 System with PDP-11/05CPU
- provides specialized graphics and interactive graphics
- provides on-line and real-time computing services, data acquisition and minicomputer services

DECSYSTEM 1060

- located in SF109/112
- provides General Purpose Time-Sharing
- 256k - 36 bit words of memory
- TOPS10 operating system



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Marg Doherty	EA206	8995

MANAGER, SERVICES

Stan Yagi	SG200	7331

INFORMATION SERVICES

Don Gibson	EA201	5568

SUPERVISOR, CUSTOMER SERVICES

Stan Yagi	SG200	7331

SUPERVISOR, PROGRAMMING SERVICES

Helen Peacock	SG201	6877

SUPERVISOR, APPLICATIONS

Herb Kugel	SG304	7286

SUPERVISOR, CO-ORDINATORS

Ralph Lombardi	SG305	7130

COMPUTING CO-ORDINATORS

Engineering Annex Terminal Time-Sharing Support		
TS Advisors	EA103	6465
Mark Tapia	EA103A	7109
Program Advisors	EA103	8599
Erindale		
Clem DiPlacido		828-5311
Scarborough		
Ihor Prociuk		284-3173
Arts and Science		
Sue Chong	SS2104	6509
New Physics		
Bob Chambers	NP1201	8823

MANAGER, OPERATIONS

Derry Cox	EA201	7092

SUPERVISORS, OPERATIONS

Paul Scarborough(DEC S/370-165)	SF103	6220
Kam Jain (S/360-65)	NP333	7374
Dave Wong (S/370-158)		6864

MANAGER, SYSTEMS

Rein Mikkor	NP352	5058

SYSTEM HARDWARE SUPERVISOR

Eugene Siciunas	EA201	4967

MANAGER, COMPUTER RESEARCH FACILITY

Dennis Smith	SF207	4086

LAB CO-ORDINATOR (CRF)

Krishna Patnaik	SF207	4086

ACCOUNTS

Sylvia May	EA206	7148
Merton Hunte	EA206	8702

ACCESS CODES

	EA206	8703

MANAGER, INFORMATION SYSTEMS

Sean Keeley		3579

NOTE:

EA = Engineering Annex
SF = Sandford Fleming
SG = 49 St. George
NP = McLennan Physical (New Physics)
SS = Sydney Smith

JOB AND SYSTEM STATUS QUERIES

SYSTEM/370,TSO	7373
ATS/APL	6234
2741 TERMINAL MALFUNCTIONS	7107

SERVICES

	DIAL-UP	ADVICE
APL	7200	6710
ATS	7100	7107
TSO - 2741	7303	6465
TSO - TTY(10,30 cps)	7386	6465
DATATALK	6710	6710
WYLBUR	7235(EBCDIC) 3950(ASCII) CENTREX 3954(ASCII) NON CENTREX	8599
DEC	4224(CAMPUS) 4244(OFF-CAMPUS)	6465

UNIVERSITY OF TORONTO
COMPUTER CENTRE,
TORONTO, CANADA,